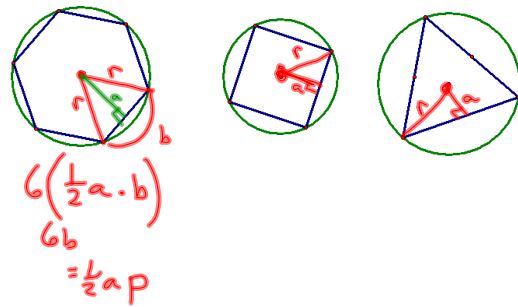


11-6 Areas of Regular Polygons

Any regular polygon can be inscribed in a circle.

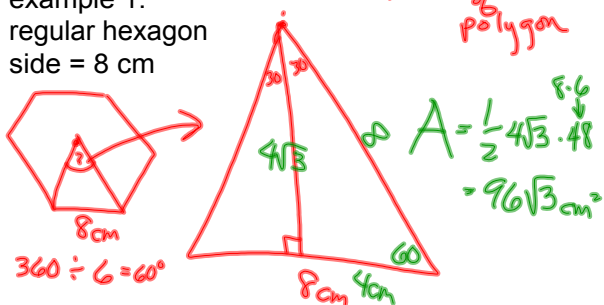
Radius--from center to vertex

Apothem--from the center and perpendicular to one side



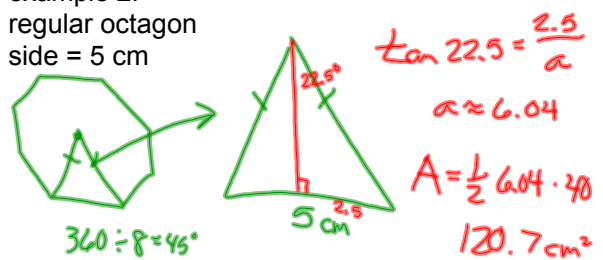
$$\text{Area} = \frac{1}{2} a p$$

example 1:
regular hexagon
side = 8 cm



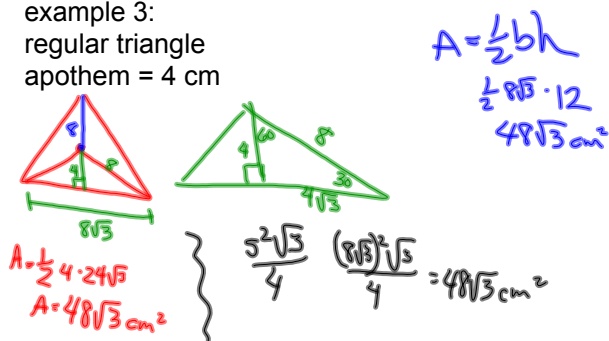
$$\text{Area} = \frac{1}{2} a p$$

example 2:
regular octagon
side = 5 cm



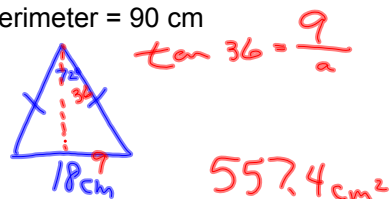
$$\text{Area} = \frac{1}{2} a p$$

example 3:
regular triangle
apothem = 4 cm



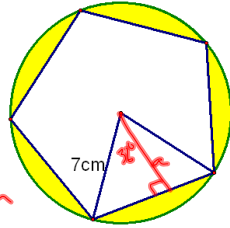
$$\text{Area} = \frac{1}{2} a p$$

example 4:
regular pentagon
perimeter = 90 cm



Example 5:

Find the area of the shaded region.



$$A_{\text{circle}} - A_{\text{pentagon}}$$

$$49\pi - 116.3$$

$$A \approx 37.6 \text{ cm}^2$$

$$p = 41.1 \cos 36^\circ = \frac{a}{2}$$

$$a = 56.67$$

$$A = \frac{1}{2} a \cdot p$$

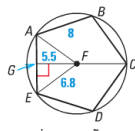
HW

p765-766

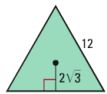
#s 1-4, 14-16, 27-29

VOCABULARY In Exercises 1–4, use the diagram shown.

1. Identify the *center* of regular polygon $ABCDE$.
2. Identify a *central angle* of the polygon.
3. What is the *radius* of the polygon?
4. What is the *apothem*?

**FINDING AREA** Find the area of the regular polygon.

14.



15.



16.



at classzone.com

POLYGONS IN CIRCLES Find the area of the shaded region.

27.



28.



29.

